

Climate change will likely have strong impacts on the diversity and distribution of marine communities. In the Arctic, the **warming of the ocean** and an increase in atmospheric CO₂ cause summer sea ice to decrease rapidly, which is accompanied by other physical changes such as salinity changes, acidification and shifts in the productivity regime. Little is known, however, about how life on the sea floor (benthos) will respond to projected changes, and so far no studies have examined this across various marine benthic habitats and from the shelf to the deep sea. Yet, it is very likely that different species, communities, habitats and depths will show a different susceptibility to change.

Seas around Iceland and adjacent seas are characterized by very **different environmental conditions** that define different habitats and related communities. They represent a boundary region between temperate, North Atlantic, and polar waters and are also considered to be **very susceptible to climate change**. They can be thus viewed as a natural laboratory to study climate impacts on the resident biota.

The main objective of **BioMaN project** is to study current and **future climate-related effects** in shelf and the deep-sea waters around Iceland on two groups of **small crustaceans**, namely **Isopoda** and **Tanaidacea** (Fig. 1). These two groups brood their young in a ventral brooding pouch, which means that their distribution may be more restricted and they are more environmentally sensitive than taxa with larval development. The study encompasses a **wide depth range** (18 and 4,580 metres) and **various habitats** including shelf, slope, cold-water corals, canyons and abyssal areas. An extensive collection of over 140,000 specimens will be studied using various methods to explore ecological, evolutionary and biogeographical affinities of Icelandic Isopoda and Tanaidacea. These data will be used to estimate the **resilience and vulnerability** of isopod and tanaidacean populations in **response to environmental shifts**.

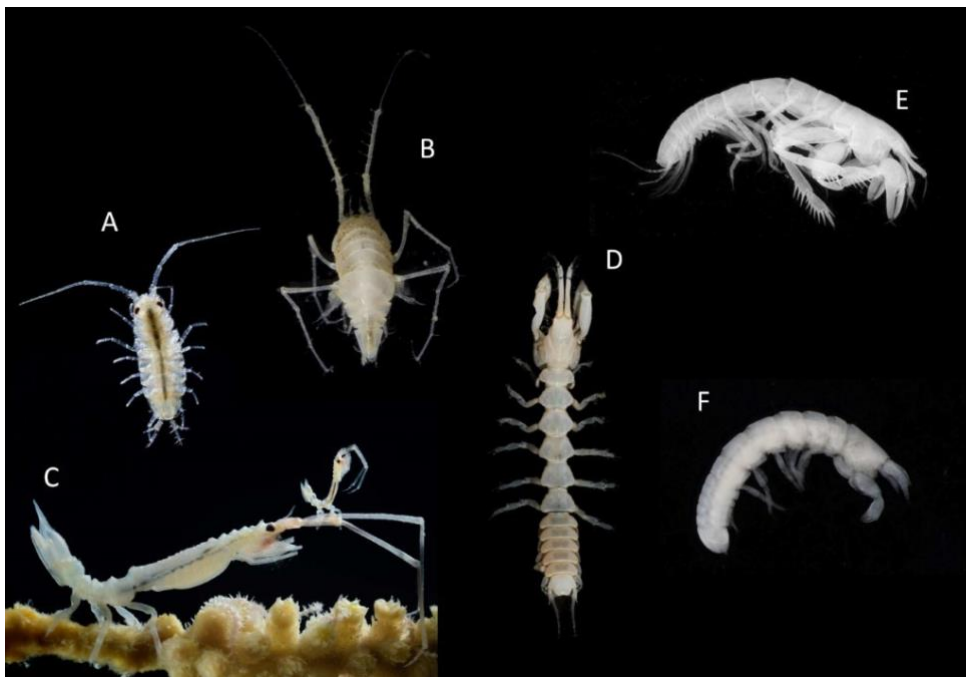


Fig. 1. Representatives of isopods (A-C) and tanaidaceans (D-F) from various Icelandic marine habitats; A) *Munna* sp, continental shelf; B) *Ilyarachna* sp., deep sea; C) *Astacilla* sp., cold-water coral reefs (CWR); D) *Neotanais* sp., abyssal; E) Sphyrapodidae; F) *Leptognathia* sp. Photo credits: S. Zankl (A, C), K. Kürzel (B, D); M. Błażewicz (E, F).